BHM MEDICAL

V4

Instructions for Use

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General Information

Thank you for purchasing the BHM V4 ceiling lift.

Your V4 is part of a series of quality products designed specially for home care, nursing homes and other health care uses.

We are dedicated to serving your needs and providing the best products available along with training that will bring your staff maximum benefits from every BHM Medical product.

Please read this manual thoroughly, and contact us if you have any questions about the operation or maintenance of your BHM Medical equipment.

Foreword

Please read this manual in its entirety before using your V4. The information in this manual is crucial to the proper operation and maintenance of the equipment, and will help protect your product as well as ensure that the equipment performs to your satisfaction. Lifting and transferring a person always presents a potential risk. Some of the information in this manual is important for your safety and must be read and understood to help prevent injuries. BHM Medical strongly advises and warns that to avoid injuries that can be attributed to the use of inadequate parts, only parts designated by BHM Medical should be used on equipment and other appliances supplied by BHM Medical.

Furthermore, unauthorized modifications on any BHM Medical equipment may affect its safety. BHM Medical will not be held responsible for any accidents, incidents or deficiencies of performance that occur as a result of any unauthorized modification to its products.

Tested according to standards by TUV Product Service and CSA.

Service and support

A service routine must be performed on your V4 by BHM Medical qualified service personnel. This will ensure the safety and good functioning of your product. See section called “Care and Maintenance” in this manual.

If you require further information, please contact your local BHM Medical representative which can offer comprehensive support and service programs to maximize the long-term reliability, safety and value of the product. Contact your local BHM Medical representative for replacement parts.

Additional copies of this manual can be purchased from your local BHM Medical representative. When ordering, include the *Instructions for Use* product number (*see front page)* and equipment identification number.

General Information

Manufacturer Information

This product has been manufactured by:
BHM Medical Inc.
2001 Tanguay Street
Magog (Quebec)
Canada J1X 5Y5

Authorized European Representative

Huntleigh Healthcare Ltd.
310-312 Dallow rd.
Luton, UK
LU1 1TD

Definitions Used in this Manual

WARNING:

Means: Failure to understand and follow these instructions may result in injury to yourself and others.

CAUTION:

Means: Failure to follow these instructions may cause damage to the product.

NOTE:

Means: This is important information regarding the correct use of the equipment.

Intended Use

The V4 is designed for lifting patients in a homecare setting, at nursing homes and other assisted living centers. Patient transferring is performed under the supervision of an appropriately trained caregiver staff in accordance with the instructions outlined in this manual. All other uses must be avoided.

The equipment must only be used for the purposes stated above, and must be installed by BHM Medical authorized personnel and in accordance with local codes.

Operational Life

The equipment is designed and tested for a useful life of seven (7) years or 10,000 transfers—whichever comes first—subject to preventative maintenance as specified in the "Care and Maintenance" section in this manual. Time equivalence between the number of transfers versus the number of years is made clear in the table in Fig. 1.

Transfers per Day	Years (10,000 transfers)
4	7
6	4.5
8	3.5

Fig. 1

WARNING: The manufacturer cannot ensure full safety for a ceiling lift or an accessory of which the life span has been exceeded.

The red indicator light on the ceiling lift will blink when it is about halfway to its useful life, and again to indicate the end of the useful life period.

The operating life of this equipment corresponds directly to the safe operating time period before a complete overhaul is required. Aging of the cassette, frequency of use (transfers per day), the weight of the patient and maintenance frequency are factors that have an impact on the V4's life span. A transfer is defined as the displacement of a patient from one point to another. A transfer cycle includes a lifting and a descending action.

The expected operational life for fabric slings and fabric stretchers is approximately two years from date of purchase. This life expectancy only applies if the slings and stretchers have been cleaned, maintained and inspected in accordance with the *BHM Medical Sling Application Guide*, the *Instructions for Use* and the "Preventive Maintenance Schedule".

The expected life for other consumable products, such as batteries, fuses, lamps, straps and cords is dependent upon the care and usage of the equipment

concerned. Consumables must be maintained in accordance with published *Instructions for Use* and the “Preventive Maintenance Schedule”.

Equipment Identification

The unit's identification number (specification, model, serial number) appears on a silver nameplate attached to the lift’s plastic housing.

Verifying the Package Contents

Always ensure that the ceiling lift will be installed by a contractor or installer that has been authorized by BHM Medical.

Upon receipt of the equipment, verify it against the packing list to ensure it is complete and inspect the equipment for possible damage due to shipping. If there is any damage, notify the carrier immediately to file a claim. Provide complete information concerning damage claims or shipping errors to your local BHM Medical representative. Include all equipment identification numbers and group part numbers (if any) as described above along with a full description of damaged parts.

How to Use this Manual

WARNING: Do not attempt to use this equipment without fully understanding the information contained in this manual.

To ensure the safe operation of the V4, read the entire manual carefully, especially the “Safety Instructions” section, before installing, operating, or servicing this equipment.

If anything is not completely understood, please contact your local BHM Medical representative for more details. Failure to comply with warnings in this manual may result in injuries.

Keep this manual with the lift and refer to it as required. Make sure that all operators are regularly trained in the use of the equipment according to the information found therein.

General Information

Symbols Used

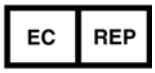
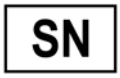
Symbol	Key to symbols
	This symbol is accompanied by the name and the address of the authorized representative in the European Community.
	This symbol is accompanied by a date to indicate the date of manufacture and by the address of the manufacturer.
	This symbol indicates the products comply with the medical device directive 93/42/EEC.
	This symbol indicates the approval of the Canadian Standards Association.
	This symbol is accompanied by the manufacturer's catalogue number.
	This symbol is accompanied by the manufacturer's serial number.
	This symbol indicates “separate collection” for all batteries and accumulators as per the WEEE Directive.
	This symbol refers to the *Instructions for Use*.
	This symbol indicates a class II electrical equipment: term referring to electrical equipment in which protection against electric shock does not rely on basic insulation only.
	This symbol indicates a type BF applied part.
	This symbol indicates a risk of pinching
	This symbol locates the emergency stop system on the lift
	This symbol locates the emergency lowering system on the lift.

Fig. 2

Safety Instructions

The equipment must be used in accordance with these safety instructions.

Anyone using the equipment must also have read and understood the instructions in this manual.

If there is anything you are not sure about, contact your local BHM Medical representative.

General Instructions

Keep these Safety Instructions with the ceiling lift at all times.

Read the *Instructions for Use* in this manual before installing, operating, or servicing this equipment.

WARNING: The V4 is for transferring patients only. Do not use the lift for any other purpose.

WARNING: Always place the sling around the patient according to the instructions enclosed. Failure to do so may result in injuries to you or to others.

CAUTION: Do not drop either the ceiling lift cassette or the batteries, since they may cause internal damage that is not easily seen. If the ceiling lift is suspected to be damaged, contact your local BHM Medical representative for servicing.

Safe Working Load

The V4 has been designed with a lifting capacity of 200 kg (440 lb) .

WARNING: The V4 is intended to be used for patients whose weight is within a specified safe working load. Do not attempt to lift more than the lowest weight limit indicated on the following:

- **the track system;**
- **the "maximum load" label on the V4;**
- **on the spreader bar;**
- **on the accessories;**
- **on the sling.**

Safety Instructions

Important Safety Directions

Always ensure that:

- The ceiling lift is installed by an authorized BHM Medical contractor or installer.
- The equipment is used by trained staff.
- The track installation will accept a load equal to that of the ceiling lift.
- Before an attempt is made to move the patient, an assessment is performed by a qualified professional.
- You are prepared before attempting to transfer a patient.
- An assessment of the suitability for transfer of a patient who is connected to electrodes, catheters or other medical devices is conducted by qualified personnel before performing the transfer.
- Violent impact during transfers is avoided.
- The spreader bar being used is intended to be used with the V4 and is capable of bearing the patient's weight.
- The sling is intended to be used for this lift and can take the weight of the patient.
- The sling is not damaged, torn or frayed.
- The lifting procedures outlined in this manual are followed.
- All controls and safety features are used only according to the rules specified in this manual. Never attempt to force a control or button on the lift.
- The charger is not stored in a shower, bath or other areas with high humidity.
- The sling straps are in good condition and properly fastened.
- The daily maintenance is carried out before using the lift.
- Any precautionary or instruction labels that cannot be easily read are replaced.
- If storing the V4 when it is not in use, the humidity in the storage area does not exceed 80% at 20ºC (68ºF).
- The ambient temperature range when storing the V4 is between –10ºC and 50ºC (14ºF to 122ºF).

NOTE: BHM Medical ceiling lifts are specifically designed for KWIKtrak ceiling rail systems, and BHM Medical slings and accessories.

CAUTION: Keep all components of the lift clean and dry, and have electrical and mechanical safety checks done as instructed in the "Care and Maintenance" section of this manual.

CAUTION: Excessive exposure of the handset to water (or other liquids) could cause malfunction of the device.

Shock Prevention

- Do not touch or use a lift with bare conductors or a damaged power cord. Electrically live equipment can result in serious injuries. If the lift or charger has any exposed or damaged wires, contact your local BHM Medical representative immediately.
- Do not splash or expose electric parts of the device to water or moisture.
- Check nameplate for input voltage and frequency requirements. These requirements differ by country. Do not attempt to use the lift in an area that has a different voltage and frequency requirement.
- Do not attempt to expose, service or repair the lift, battery or charger. If any unit is malfunctioning, contact your local BHM Medical representative.
- Read batteries and charger instructions thoroughly before using or storing them.

Safety Instructions

Fire and Explosion Prevention

WARNING: Do not place or store the battery under direct sunlight or near a heat source. Do not expose the batteries or battery charger to flames. Do not use the charger in the presence of flammable anaesthetic gases.

- Do not short circuit the battery terminals.
- Do not incinerate the battery.

Human and Environmental Safety Practices

- Should the battery casing crack, allowing its contents to come into contact with skin or clothing, rinse immediately with water. If the contents comes in contact with the eyes, rinse immediately with plenty of water and seek medical attention.
- Inhalation of the contents can cause respiratory irritation. Sensitivity to nickel can cause allergic asthma to result. Seek out fresh air and medical attention.
- For recycling and disposal of the batteries, the rules according to the WEEE directive (Waste of Electronic and Electrical Components) as well as local laws and regulations must be followed. If not they may explode, leak and cause personal injury. When returning batteries, insulate their terminals with adhesive tape. Otherwise, the residual electricity in used batteries may cause fire or explosion. Fig. 3 below shows the symbols for disposal and recycling.

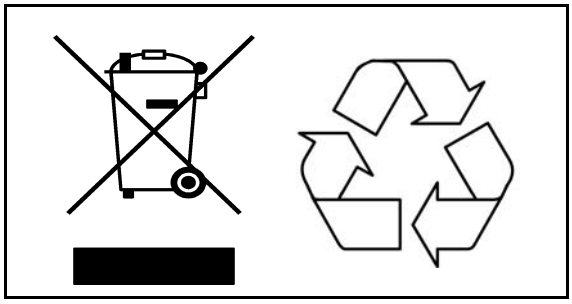


Fig. 3

Battery and Battery Charger Safety Practices

WARNING: Do not expose the battery connector or the battery charger to water. The charger is designed for dry areas only and for normal air humidity conditions.

- Be careful not to drop the batteries.
- Only use the charger that has been supplied with the equipment.
- Do not charge the batteries in an unventilated area.
- The charger must not be covered or exposed to dust.
- Do not crush, puncture, open, dismantle or otherwise mechanically interfere with the batteries.
- Do not store batteries at a temperature higher than 50ºC (122ºF).

Equipment Warning Labels

- Carefully read the labels on the battery and follow the instructions.
- Inspect all precautionary labels on the equipment. Order and replace all labels that cannot be easily read.

Part Designation

V4 Ceiling Lift and Charger Station

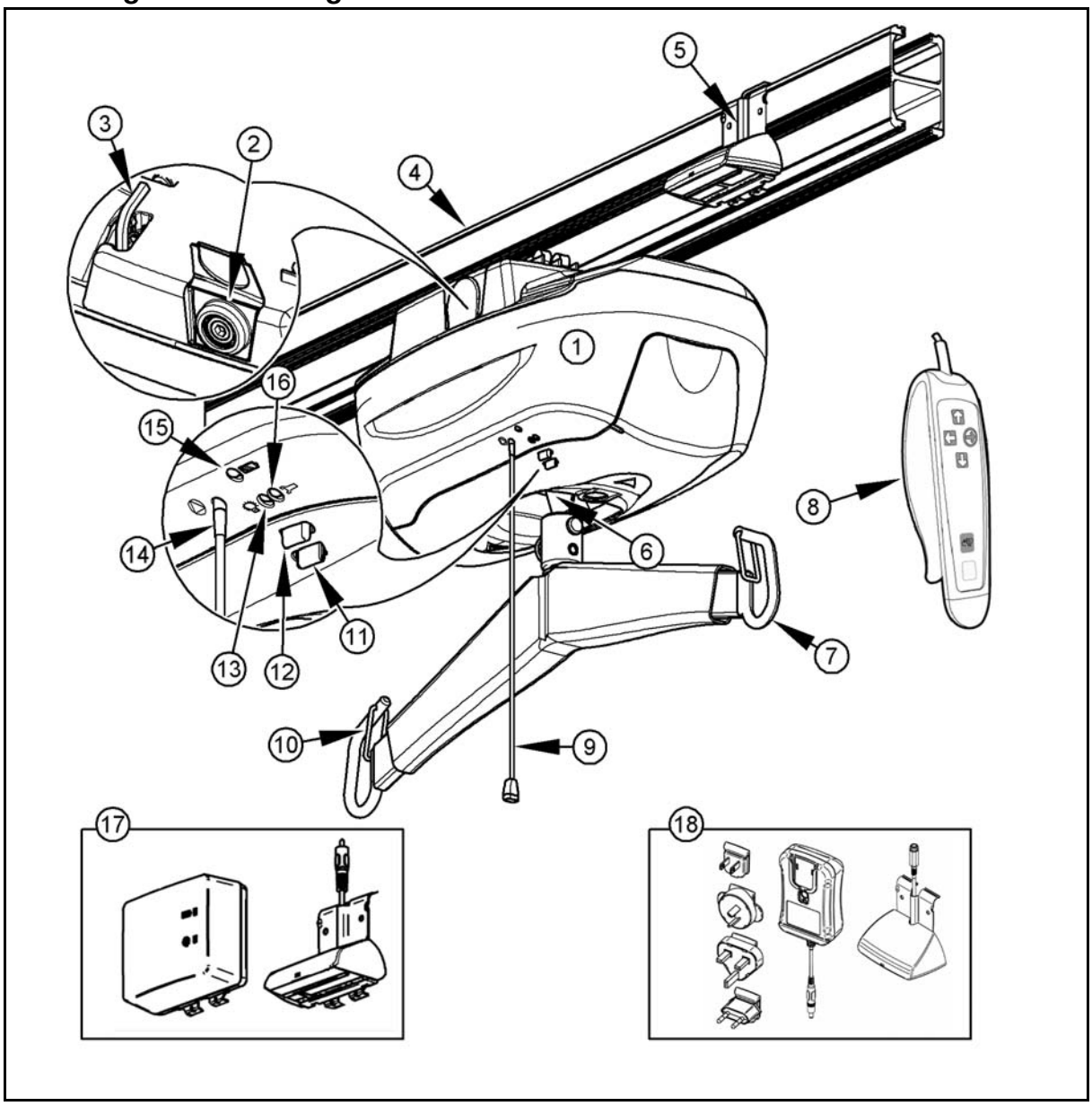


Fig. 4

Legend

1) Ceiling lift
2) Emergency lowering mechanism
3) Allen key
4) Track
5) Charging station
6) Strap
7) Spreader bar
8) Handset
9) Red emergency pull cord
10) Safety latch
11) UP button
12) DOWN button
13) Green power light
14) Emergency switch plastic insert
15) Yellow charging light
16) Red maintenance/overload light
17) Cord-connected charger (700.15500)
18) Wall-adapted charger (700-15501)

Part Designation

The following refers to Fig. 4 on previous page:

- The yellow charging light flashes while charging and goes solid when charge is finished.
- The green power light illuminates once the lift is on and ready for use; the green light flashes when the batteries are low.
- The red light illuminates to confirm that the lift is in the programming mode.
- The red light also illuminates in the normal mode when the lift goes into overheat protection caused by overuse.
- The red light flashes when servicing is required (contact customer service).

Handset

The V4's handset unit is used to operate the ceiling lift. Each funtion is described in Fig. 5. The UP and DOWN buttons raise or lower the spreader bar. With the four-function model, the LEFT and RIGHT buttons activate a lateral motor to move the lift along the track. If you have a two-function model, the LEFT and RIGHT buttons will not function, and the lift must be moved manually.

The PROGRAMMING MODE button allows you to modify the functions of the lift (see Fig. 5). Refer to the "V4 Programming" section for more information.

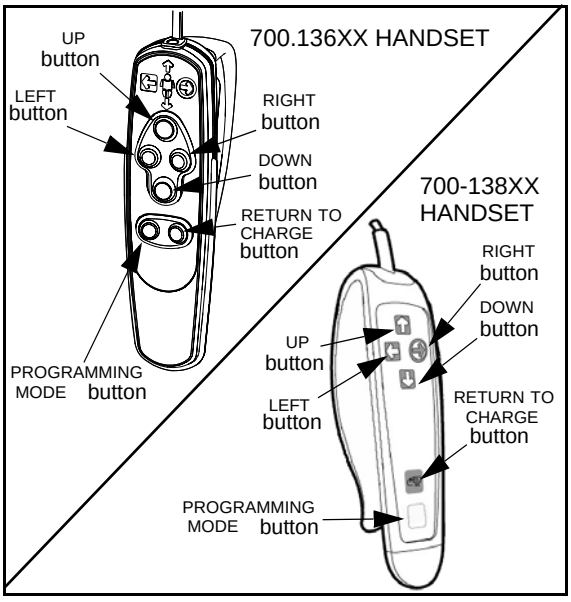


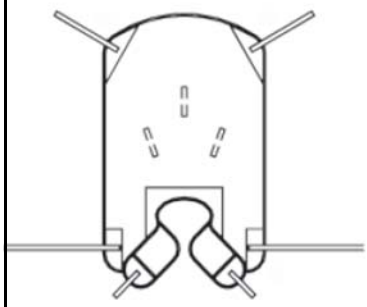
Fig. 5

Chargers

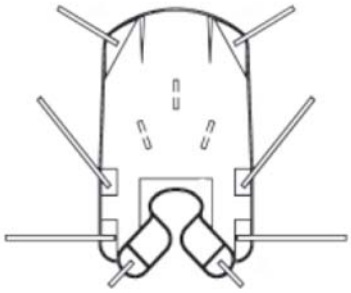
The V4 units are equipped with either a cord-connected universal charging system (#700.15500) or a wall-adapted charger (#700-15501) that can both be customized to fit the AC voltage outlets where they are sold (see Fig. 4).

Slings

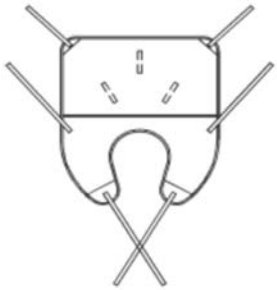
Compatible Slings



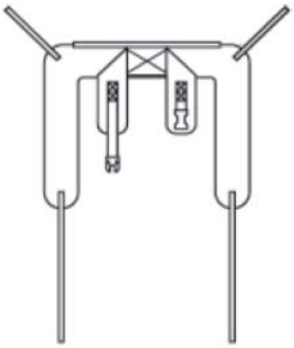
Hammock sling
(THA-X & THAI-X)



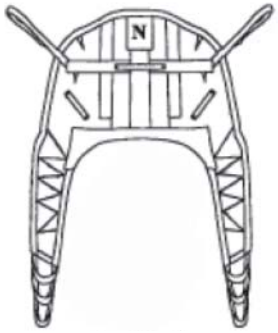
Hammock 6 sling
(THA6-X & THA6I-X)



Quick Fit sling
(TIR-X)

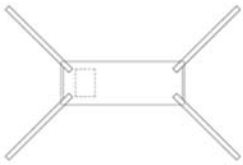


Hygienic sling
(THY-X)

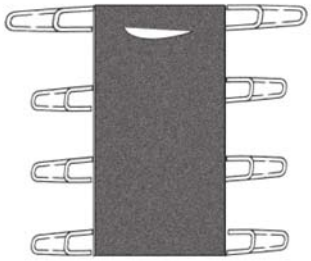


Combi sling
(62600X-X)

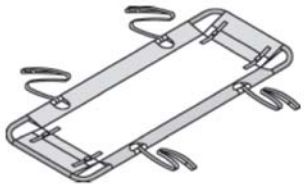
Walking sling
(TEM-X)



Limb sling
(300.20005)



Repositioning sling
(624500)



Universal Stretcher
(A3510)

Fig. 6

How to Use the V4 Ceiling Lift

WARNING: Always read the "Safety Instructions" before using the V4.

- **The track must be installed and modified only by BHM Medical authorized personnel and in accordance with local codes.**
- **All tracks must be closed with end stoppers or connected to other closed track components.**
- **Before use, make sure all end stoppers are in place and secured.**

NOTE: The unit will not lift or lower when it is in charging position.

To begin the transferring procedure:

1) Attach the patient sling. See "Use of Slings" section in the user manual for further information.
2) Move the ceiling lift directly over the patient. With the four-function model, use the left and right buttons on the handset (see Fig. 5). With the two-function model, simply hold the ceiling lift's spreader bar and drag it along the track.
3) Use the DOWN button on the handset to lower the spreader bar to a point below the chin of the patient (to avoid the risk of it striking the patient's face due to a sudden movement).

If the patient is lying down, lower the spreader bar down near the patient's thorax, then install the straps.

WARNING: Hold the ceiling lift spreader bar with one hand at all times when near a patient.

4) Attach the straps to the desired position. See "Use of Slings" section.

WARNING: Pay close attention to the safety of the patient as you press the control buttons. Before lifting the patient, make sure that all straps are attached to the spreader bar.

Make sure the sling is not caught on any obstructions (for instance, the wheelchair brakes or armrests).

Also make sure that the spreader bar is correctly attached to the ceiling lift. See Fig. 7 below.

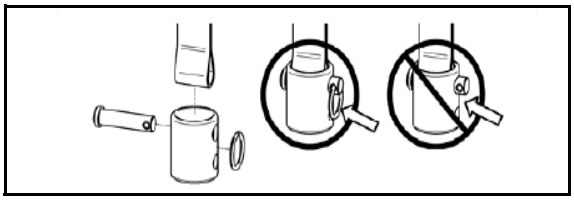


Fig. 7

5) To lift the patient, press the UP button.
6) Make sure the patient is clear of any obstacles before moving him/her. Guide the patient's legs if necessary.
7) When the patient is located above the desired point of transfer, press the DOWN button.
8) Use the handles on the back of the sling to position the patient when transferring into a chair. Hold the handle firmly as the sling will tilt back to position the patient.
9) Once the patient is properly seated and the straps have slackened, remove the sling from around the patient, and off the ceiling lift.
10) Move the ceiling lift away from the patient.
11) When the V4 is no longer required, return the ceiling lift back to the charging station. With the four-function model, use the right or left buttons or press the return to charge button. With the two-function model, simply drag the ceiling lift back by the spreader bar. The charging indicator light on the clip-on charging station must be on for the ceiling lift to detect it.

Verify the green light on the charger station and the yellow light (flashing or solid) on the ceiling lift to ensure that the charging function is working properly.

How to Use the V4 Ceiling Lift

NOTE: The V4 is equipped with a safety system to prevent a misuse of the ceiling lift. If the lift is used above the amount specified by the duty cycle, a heat detection system will signal the processor to block the lifting of a load until the temperature of the transmission cools down. In the meantime, it will still be possible to activate the horizontal displacement and down functions.
When the overheat protection is engaged, the red light will stay on during the cooling period. In addition, a buzzer will sound if the UP button is pressed. The cooling period is between 10 to 30 minutes depending on ambient conditions.

Return to Charge (RTC)

The RTC function is disabled by default (with the exeption of units equipped with infrared handset, whose RTC fuction is *enabled* by default). To activate this function, please refer to the "V4 Programming" section in this manual.

To engage the RTC function, press on the return to charge button on the handset for 3 seconds (1 second for infrared units). The spreader bar will raise all the way up to avoid any obstacles during the run. When the lift is at the charging station, the spreader bar lowers by itself to the preselected height so as to be easily accessible.

WARNING: DO NOT make use of the RTC function when there is a patient in the lift, as this could cause injuries to the patient.

NOTE: You can stop the return to charge at any time by pressing any button on the handset or pulling on the red emergency cord.

WARNING: Extra care should be exercised when manipulating the handset when transferring a patient that weighs 20 kg (45 lb) or less. The weight detector within the unit that prevents the RTC from functioning when a patient is in the lift can only detect a minimum load of 20 kg (45 lb).

Emergency Stop (red cord)

The emergency stop can be activated at any time to stop the functioning of the ceiling lift.

1) To stop the ceiling lift in any emergency, gently pull the red emergency cord once, until you hear a "click" (see Fig. 4 in the "Part Designation" section of this manual). You will notice that the reset switch's plastic insert, at the very top of the red cord, has descended. The green power light has also turned off. You may also notice that the patient begins to descend slowly when the emergency stop is activated. This is normal.

CAUTION: Do not pull the red emergency cord with excessive force. If the cord is jerked too hard, the ceiling lift may become inoperable.

2) To reactivate the ceiling lift, push up on the reset switch's plastic insert (for units equipped with infrared handsets pull the red emergency cord again). A green light confirms that the V4 is on and ready for use.

Emergency Lowering

In the unlikely event of an electrical failure, the V4 has an emergency manual lowering feature.

CAUTION: The emergency lowering feature is to be used only in case of emergency.

If the ceiling lift malfunctions when a patient is being transferred, the emergency lowering device provides a safe way of getting the patient down onto a chair, bed or wheelchair (see Fig. 8). To use it:

1) Pull the red emergency cord.
2) Open the small side door to access the lowering mechanism.
3) Remove the 8 mm Allen key on the top of the ceiling lift. Insert the Allen key deep into the axle.
4) Turn the Allen key counter-clockwise to slowly lower the patient.

Once the patient is lowered and secure within a chair, bed or wheelchair, call a qualified technician to inspect the ceiling lift.

How to Use the V4 Ceiling Lift

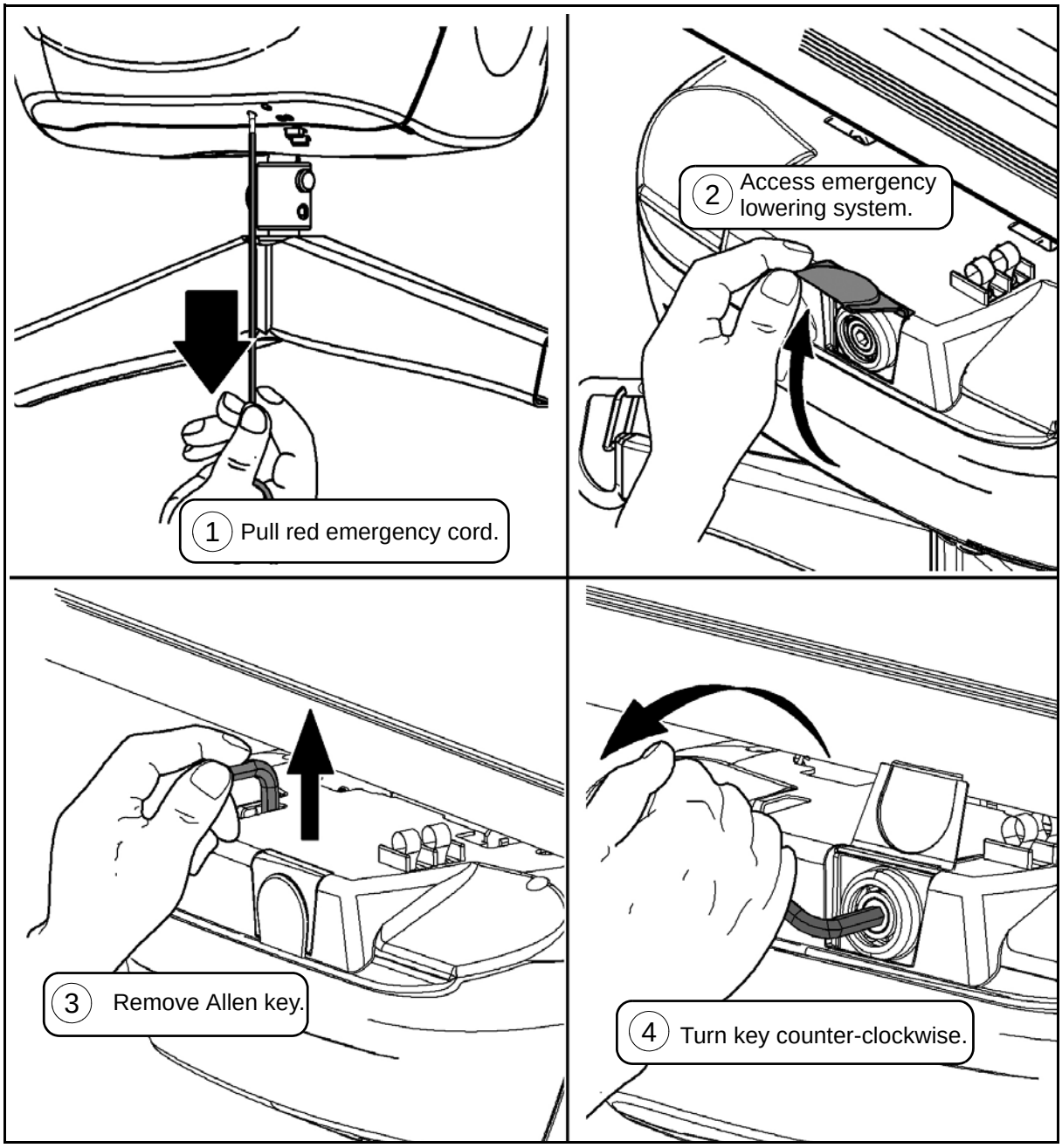


Fig. 8

How to Use the V4 Ceiling Lift

Emergency Brake

The emergency brake consists of a metal bar fixed to the drum and functions similarly to a car seat belt mechanism.

In the unlikely event that of a transmission or motor failure, the centrifugal force produced will quickly throw the metal bar against the frame, blocking the descent.

Battery Information

The life cycle (number of charging cycles) of the batteries is largely dependent on the depth of discharge within each cycle. The more the batteries are drained, the shorter their overall life span. The life of the batteries is also related to such factors as varying temperatures and rest periods between when they are charged and discharged.

NOTE: To prolong battery life, return the ceiling lift to the charger whenever the ceiling lift is not in use.
If the low battery indicator beeps, and a green light flashes, be sure to recharge the batteries as soon as possible. Charge the batteries until the charging indicator light is a solid yellow before using the lift again. This will extend the life of the batteries.

NOTE: BHM Medical uses sealed lead-acid batteries. These batteries do not have any memory effect. Therefore, batteries should not be completely drained before recharging.

CAUTION: Never leave a ceiling lift with the power on for an extended period of time without returning it to the charger. The batteries will be drained and damaged.

See Fig. 9 for a graph illustrating the relationship between the number of lifts versus the load being lifted.

Indicator Lights

The ceiling lift and the charging system have many indicator lights. It is important to understand their significance for the proper use and comprehension of the ceiling lift (see Fig. 10).

Charging the Batteries

WARNING: Do not operate the charger unit with a damaged cord or if the unit has been dropped or damaged.
Do not bend the power cord by force, or place a heavy object on it. This will damage the cord and may cause fire or electrical shock.

The steps for recharging the batteries are as follows:

1) The green indicator light will begin flashing if batteries are low and need to be recharged. If the light does not turn on, verify the "Troubleshooting" section of this manual.
2) With a four-way unit, use the right or left button or press the return to charge button on the handset; if you chose to activate this feature. A protection device prevents the ceiling lift from returning to the charger if a patient is in the ceiling lift during this operation. With a two-way unit, slide the V4 back to the charger until the contact blades on the lift make contact with the charging station.
3) The yellow indicator light will flash when the ceiling lift cassette has returned to the charger and the batteries are being charged. Once the charge is complete the light will stop flashing and become a solid yellow light.

WARNING: Batteries need to be charged for a minimum of 8 hours prior to the initial use of the lift.

How to Use the V4 Ceiling Lift

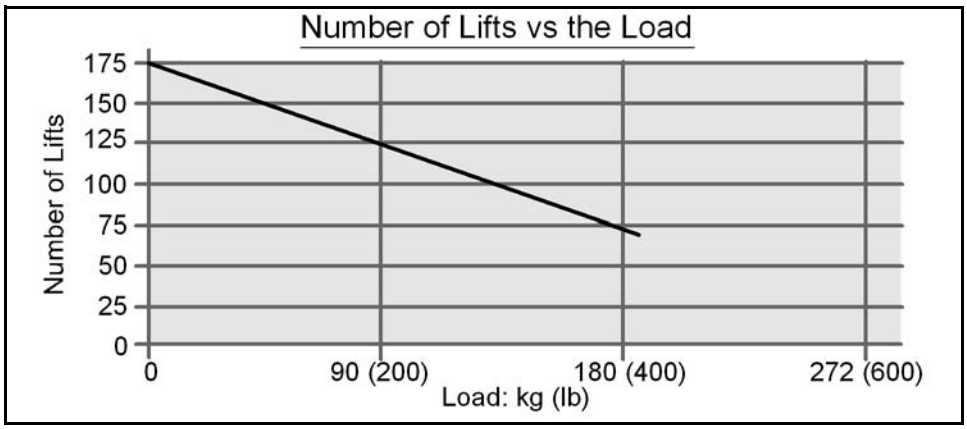


Fig. 9

Green power light	**OPERATING THE LIFT**	
	Flashing	Low batteries
	Solid	The lift is on and ready to use
Yellow charging light	**STATE OF BATTERIES**	
	Flashing	In process of charging batteries
	Solid	Charging done; batteries charged
Red maintenance/overheat light	**MAINTENANCE**	
	Flashing	Maintenance required by your local representative
	Solid	Lift was powered up in “service mode” or is under overheat protection
	CHARGING	
Clip-on charger station indicator	Solid green	Clip-on charging station power is on
	Solid red	Problem with charger; do not use the charger

Fig. 10

How to Use the V4 Ceiling Lift

If the batteries have been completely drained it could take up to 6-8 hours to completely recharge them. In order to reduce the charging time, refrain from completely draining the batteries and leave the ceiling lift on the charging station between uses.

Programming the Ceiling Lift

The V4 can be programmed so that the user can easily adjust the speed of the horizontal movement, the spreader bar height and the return to charge parameters of the ceiling lift. To learn about the programming mode, see the section "Programming the Ceiling Lift" on pages 25, 26 and 27 of this manual.

Using the FIDO Function (Pre-Programmed Positions)

WARNING: This function can only be activated by qualified technician.

1) Using the pre-programmed positions allows the unit to detect stations (positions) located along the track path. The unit will go to the indicated position by using the handset.
2) To do so, indicate to the unit the desired position to go. For an example, to go to the third station push three times on the PROG button followed by the direction (LEFT or RIGHT buttons).

Then the unit goes by itself to the requested station and stay on hold.

If the position you asked for is not correct, you may stop the ceiling lift at any time by pressing any button on the handset. From this position, reprogram the ceiling lift to the new desired position. Count the number of stations from where you are and indicate the direction to go.

Use of Slings

Spreader Bars and Stretcher Frame

WARNING: Spreader bars must only be installed by qualified personnel.

WARNING: Before using the V4, always ensure the strap attachment pin is installed correctly through the spreader bar socket and lift strap, and that the split ring is correctly inserted through the hole in the pin (see Fig. 7).

Slings

The spreader bar that is attached to the V4 determines what slings can be used to transfer a patient. The two-point spreader bar with sling attachment hooks can accommodate any of the BHM Medical loop attachment slings.

All slings are color coded for size by having a different colored edge binding or attachment strap coloring:

- Grey - Extra Extra Small - XXS
- White - Extra Small -XS
- Red - Small - S
- Yellow - Medium - M
- Green - Large - L

A range of special purpose slings are available as accessories, for these or for special size slings, contact your BHM Medical representative.

WARNING: Only use slings supplied by BHM Medical and that are designed to be used with the V4. For sling use please refer to the notes on page 10.

Before Approaching the Patient

The attendants should always tell the patient what they are about to do. Make sure to have on hand a sling that is of the correct model and of adequate size for transfer with the V4 unit.

How to Use the V4 Ceiling Lift

Before performing the transfer, it is important to evaluate the patient's general condition. For example, an agitated patient will require a specific type of sling.

Procedure for Using Loop Slings with a Two-Point Spreader Bar

The slings to be used with the two point spreader bar are BHM Medical's loop slings. They are available in five sizes (extra extra small, extra small, small, medium, large) and are all color coded. A range of more specialized slings are available; please contact BHM Medical or one of their authorized distributors for details. If in any doubt as to the weight of the patient, select a sling from the loop range with two-point spreader bar, then use a patient scale to check the weight prior to accurate sling selection.

The correct size sling will be able to support the patient's shoulders during the transferring procedure.

The spreader bar has two hooks at either end of the bar; always use these for the shoulder strap loops (see Fig. 11).

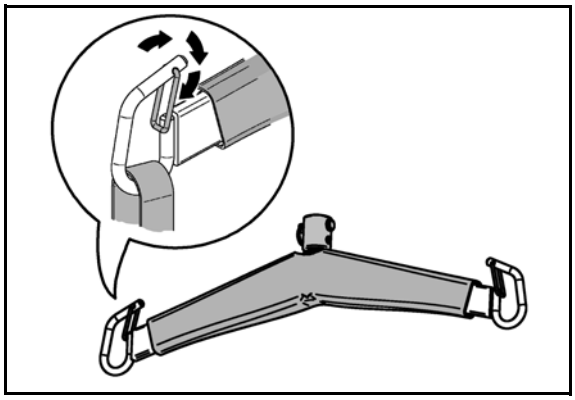


Fig. 11

WARNING: The two-point spreader bar has hooks for use only with slings equipped with loops.

When attaching a loop sling to the two-point spreader bar, always ensure the sling attachment loops are positioned correctly into the safety latches as shown in Fig. 11.

The specific sling loops chosen determine the position of the patient. Different loop combinations can be used to allow the patient to be lifted and transferred in positions ranging from semi-reclined to seated.

Once the loop sling has been fitted around the patient, it can be configured in three ways. With each of the three methods described it is necessary to first connect each shoulder loop (points **A**) of the sling to the hook that is on the the same side of the spreader bar (see Fig. 12).

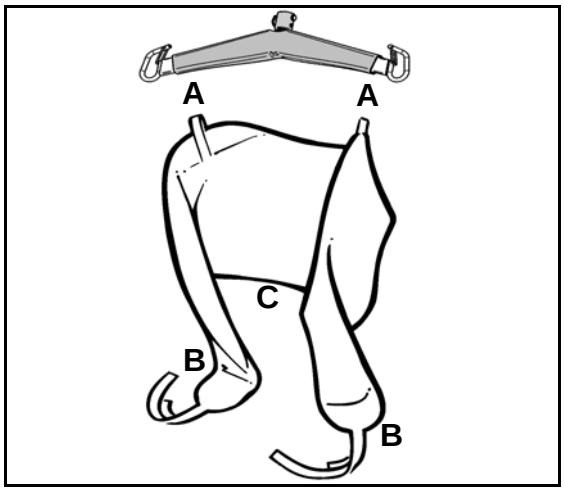


Fig. 12

Method 1: With the sling correctly positioned around the patient, slide the left-hand leg section of the sling under the patient's left thigh and the right-hand leg section under the patient's right thigh. Attach each leg loop (see points **B** in Fig. 12) of the sling to the outer hook on the opposite side of the spreader bar (see Fig. 13).

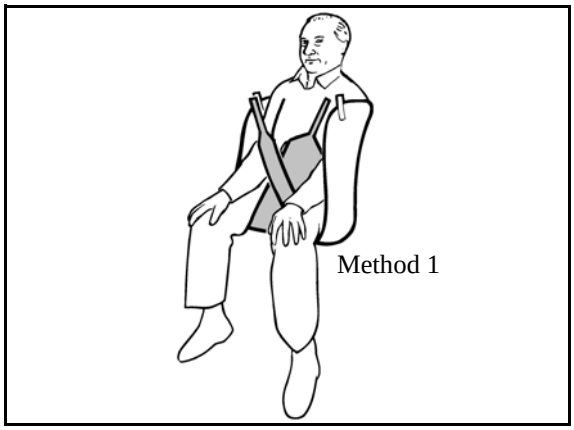


Fig. 13

How to Use the V4 Ceiling Lift

Method 2: With the sling correctly positioned around the patient, pass each leg section of the sling under both thighs of the patient, then attach each leg loop (see points **B** in Fig. 12) to the outer hook on the opposite side of the spreader bar (see Fig. 14).

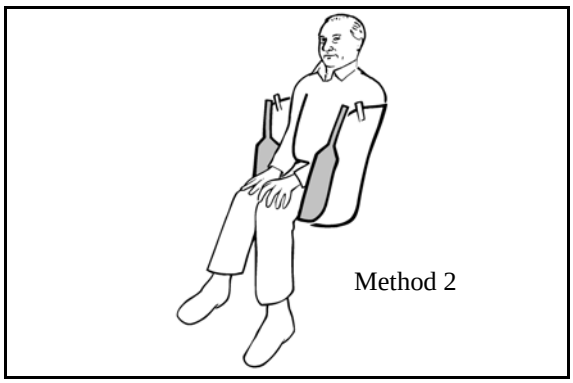


Fig. 14

CAUTION: This method might not be suitable for confused, combative or erratic patients as they can fall forward and get injured.

Method 3: With the sling correctly positioned around the patient, slide the left-hand leg section of the sling under the patient's left thigh and the right-hand leg section under the patient's right thigh, then attach each leg loop (see points **B** in Fig. 12) to the hook that is on the same side of the spreader bar (see Fig. 15).

This particular method holds the patients legs in abduction, and is useful for toiletting.

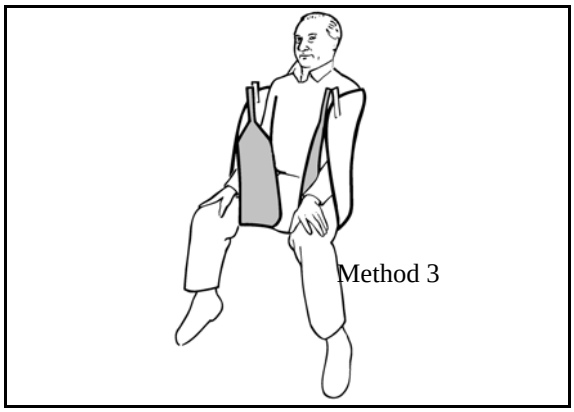


Fig. 15

CAUTION: This method might not be suitable for patients with no upper body control as they can slide down and almost out of the sling when it is applied in this manner.

Apart from the methods listed above, the two-point spreader bar with loop slings is also extremely useful for lifting patients who have contracted legs. Attach the sling in the regular manner as described in the following section "To lift a Patient from a Bed".

For more infirmation on the use of loop slings, refer to the *Loop Slings Instructions for Use* that comes with the sling.

To Lift a Patient from a Bed

If the patient cannot attain a sitting position, then roll the patient toward you, fold the sling in half length-wise and place it along the patient's back. Position the sling so that when rolled back, the patient will lie in the center of the sling.

Align the bottom of the sling with the patient's coccyx (see Fig. 16). When the patient is lying in the correct position on the sling, carefully flex the patient's legs and bring the leg sections of the sling under the thighs, ready to attach the complete sling to the two-point spreader bar.

NOTE: The design of the spreader bar and sling allows for the transfer to be done with only one caregiver.

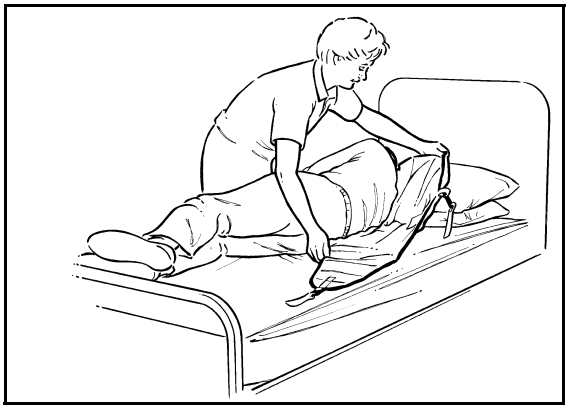


Fig. 16

How to Use the V4 Ceiling Lift

If the patient can sit easily, the sling can be positioned the same way as if the patient was seated in a chair: i.e. by easing the patient forward, (if necessary) slide the sling down the patient's back until seam **C** (see Fig. 12) reaches the base of the spine. Take attachment points **B** and pass the leg sections of the sling underneath the patient's thighs, as appropriate to one of the three methods for lifting discussed above. Ensure that the sling's sections are not twisted underneath the patient.

To Lift a Patient from a Chair

Lower the spreader bar until you can easily attach the loops of the sling. Be careful not to allow the spreader bar to touch the patient, using your hand to stabilize it.

WARNING: Always hold the spreader bar until at least a couple of loops are attached to the spreader bar, to prevent it from striking the patient (see Fig. 17).

Once the sling has been positioned and attached securely to the spreader bar as described in any of the three methods, lift the patient using the control handset.

Avoid lifting the patient higher than eye level to lessen anxieties the patient may feel about heights.

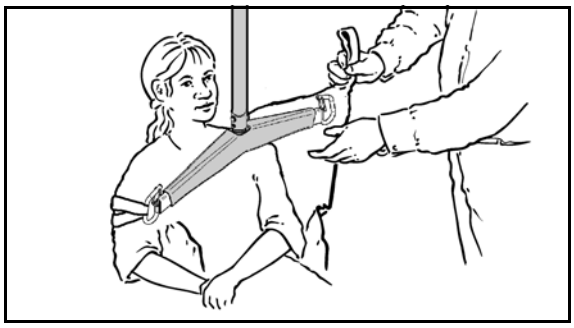


Fig. 17

To Lift a Patient from the Floor

Raise and support the patient into a sitting or half sitting position. Some attendants prefer to use a larger sling for this operation (see Fig. 18).

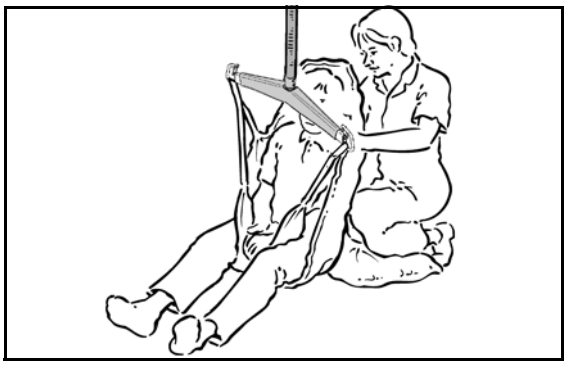


Fig. 18

Slide the sling down the patient's back as described previously, bring the leg sections of the sling into position and under the patient's thighs. Lower the spreader bar (taking care not to permit it to touch the patient) until the spreader bar is low enough to attach the sling shoulder loops. Flex up the patient's knees to connect the leg sections of the sling.

WARNING: Before lifting the patient, check that the sling attachment loops are securely positioned within the spreader bar hooks (see Fig. 11) and that the loops stay in place as the patient is gradually lifted.

When the patient has been returned to the bed he/she may be reclined before the sling is unhooked from the spreader bar.

Before Transferring a Patient

Turn the patient to face the direction of travel, and keep him/her at chair height; this can provide the patient with a level of confidence and dignity.

WARNING: Ensure any obstructions are removed from the intended route of travel.

To ensure maximum comfort for the patient, do not allow the patient to hold on to the spreader bar.

Using Stretcher Frames and Stretchers

If any of the BHM Medical patient stretcher frames and stretchers are to be used with the V4, always refer to the separate relevant stretcher frame and stretcher operating instructions supplements before use.

How to Use the V4 Ceiling Lift

Operating the Exchanger

An exchanger allows the V4 access from one care area to another. Make sure that the lift is on by checking to see if the green light is lit.

Move the lift to the activation station and release the button on the handset. Listen for a beep, then wait while the exchanger changes its path (see Fig. 19).

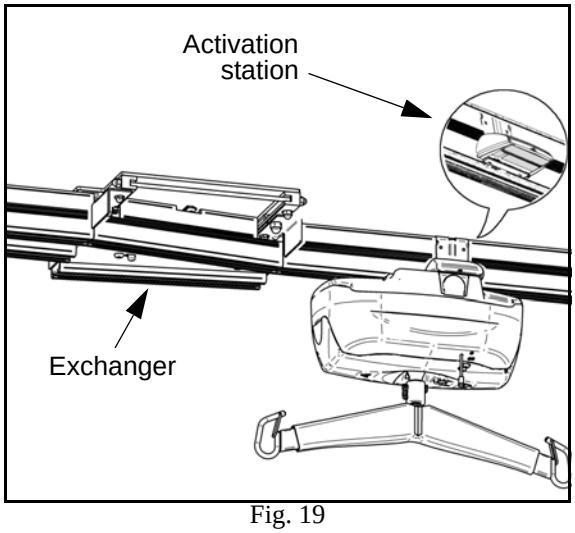


Fig. 19

Move the lift through the exchanger (see Fig. 20).

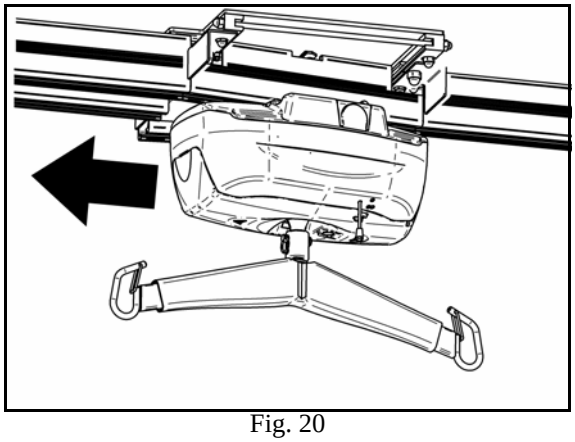


Fig. 20

If the exchanger fails to operate automatically or if there is an emergency situation, manually engage the quick-release located underneath the exchanger (see Fig. 21). While holding it in the open position, slide the plate over to the new location being careful not to place your hand or fingers in the path of the sliding plate.

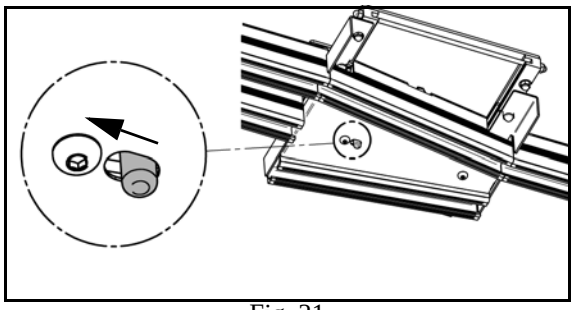


Fig. 21

Release the quick-release button and move the lift through the exchanger.

Operating the Turntable

Turntables enable the ceiling lift to change route in a multi-directional track system. Make sure that the lift is on by checking to see if the green light is lit.

Move the lift to the activation station and release the button on the handset. Listen for a beep sound, then wait while the turntable changes its path (see Fig. 22).

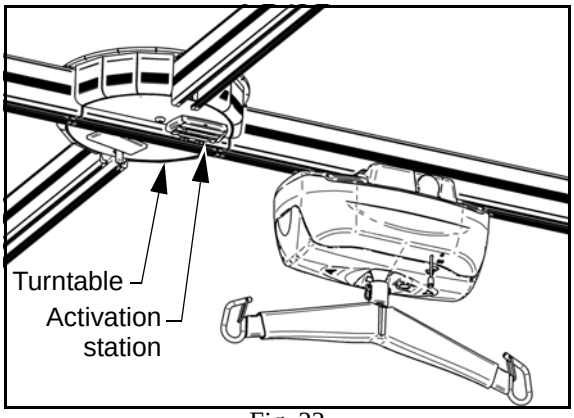


Fig. 22

V4 Programming

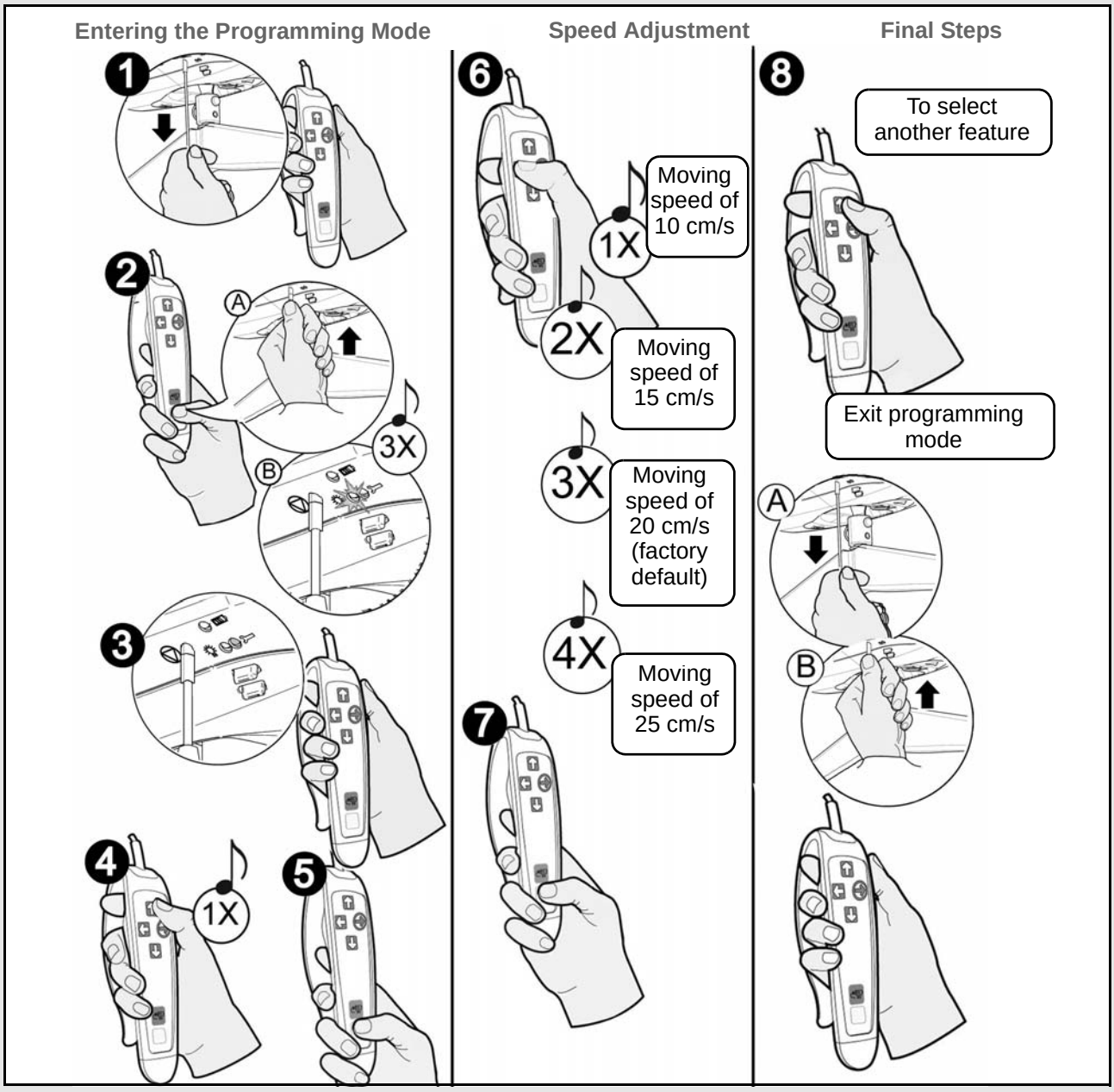


Fig. 23

Changing the Speed of Movement

❶ Turn the ceiling lift off by pulling on the red cord. The green LED will turn off.

❷ Press the PROG button on the handset. At the same time, push up on the plastic insert switch (for units with infrared handsets, pull the red emergency cord again). The green light will flash, and you will hear three beeps.

❸ The red LED will then illuminate. You can now release the PROG button.

❹ Press once the UP button (you will hear one beep) for speed adjustment feature.

❺ Now press the PROG button to confirm the selection.

❻ Using the LEFT button, select one of four predetermined speeds.

❼ Now press the PROG button to confirm the selected speed.

❽ Press UP to continue within the programming mode, or to return to regular mode, pull on the red cord, then push up on the plastic insert switch (for units with infrared handsets, pull the red emergency cord again).

V4 Programming

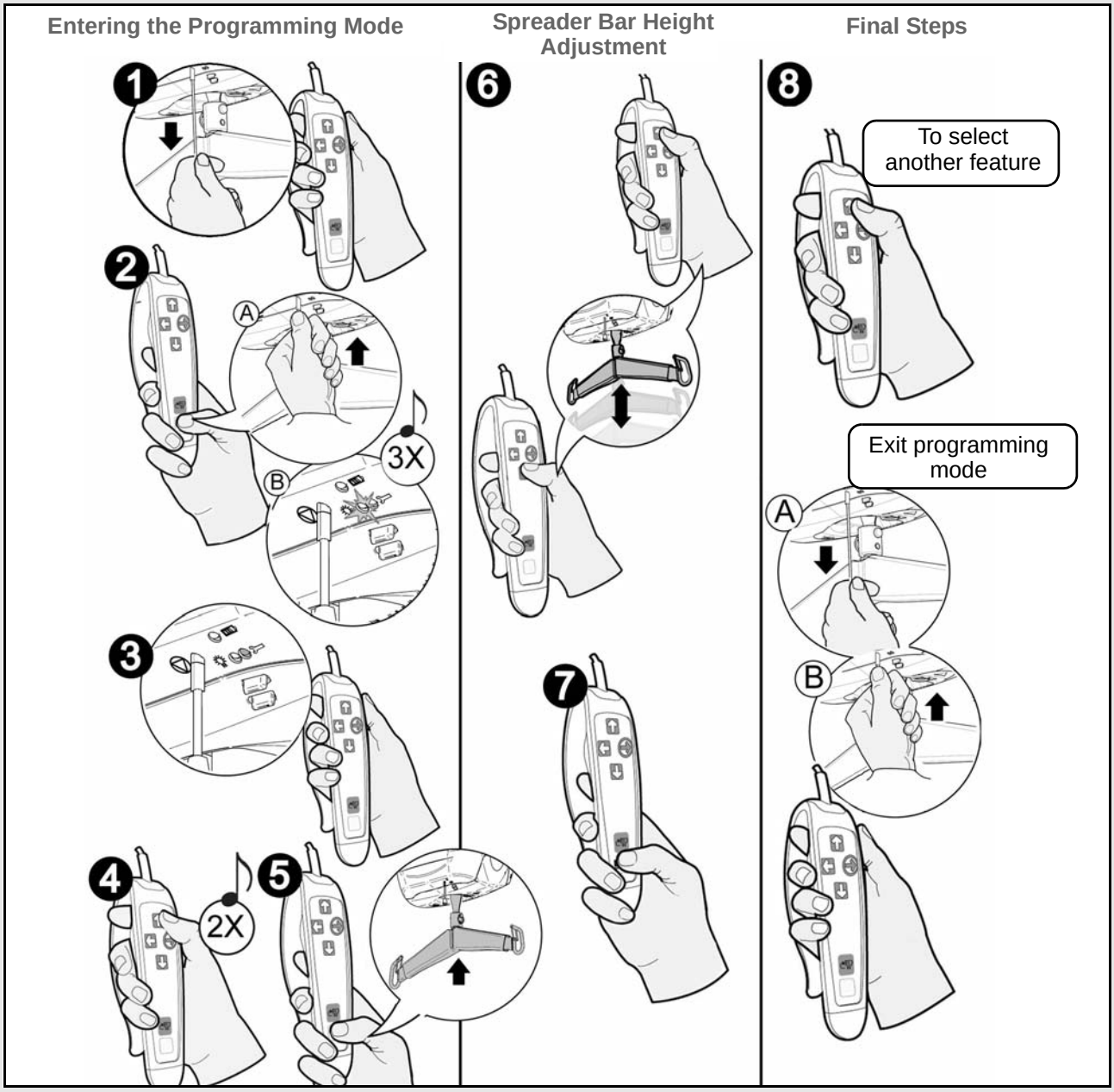


Fig. 24

Adjusting the Spreader Bar Height

❶ Turn the ceiling lift off by pulling on the red cord. The green LED will turn off.

❷ Press the PROG button on the handset. At the same time, turn on the ceiling lift by pushing up on the plastic insert at the top of the red cord (for units with infrared handsets, pull the red emergency cord again). The green light will flash, and you will hear three beeps.

❸ The red LED will then illuminate. You can now release the PROG button.

❹ Press twice the UP button (you will hear two beeps) to change the spreader bar height.

❺ Now press the PROG button to confirm the selection.

❻ The strap will begin winding up. Once it is completely wound, press the UP and DOWN buttons to set the height the spreader bar's rises to once it is sent to the charging station.

❼ Now press the PROG button to confirm the selected height.

❽ Press UP to continue within the programming mode, or to return to regular mode, pull on the red cord to turn the unit off, then push up on the plastic insert to turn it on (for units with infrared handsets, pull the red emergency cord again).

V4 Programming

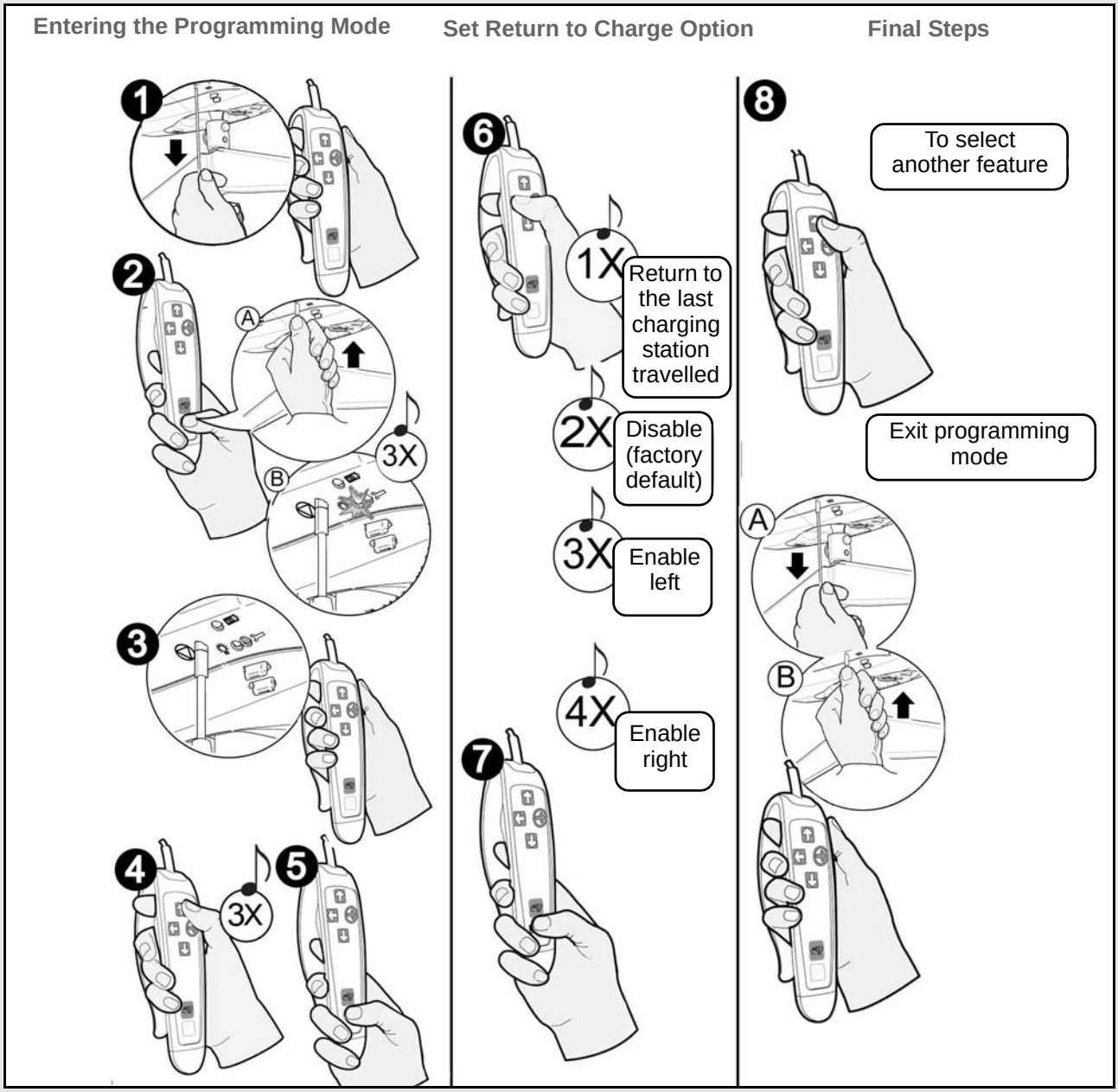


Fig. 25

Enable/Disable Return to Charge (RTC)

❶ Turn the ceiling lift off by pulling on the red cord. The green LED will turn off.

❷ Press the PROG button on the handset. At the same time, push up on the plastic insert switch (for units with infrared handsets, pull the red emergency cord again). The green light will flash, and you will hear three beeps.

❸ The red LED will then illuminate. You can now release the PROG button.

❹ Press three times on the UP button (you will hear three beeps) to enable/disable the RTC.

❺ Now press the PROG button to confirm the selection.

❻ Using the left button, select one of the four predetermined selection.

❼ Now press the PROG button to confirm the selected return to charge.

❽ Press UP to continue within the programming mode, or to return to regular mode, pull on the red cord, then push up on the plastic insert switch (for units with infrared handsets, pull the red emergency cord again).

Care and Maintenance

Preventive Maintenance Schedule

The equipment is subjected to wear and tear, and the following maintenance instructions must be acted upon when specified to ensure that the equipment remains within its original manufacturing specifications. Care and maintenance must be carried out in accordance with the preventive maintenance schedule below.

Customer obligations must be carried out by qualified personnel in accordance with the instructions in this manual.

WARNING: The maintenance described in the following checklist is the minimum that the manufacturer recommends. In some cases more frequent inspections should be carried out. Continuing to use this equipment without conducting regular inspections or when a fault is found will seriously compromise the safety of the user and of the patient. Local regulations and standards may be higher than those of the manufacturer. A load test is recommended. Service and preventative maintenance can be arranged with the manufacturer. Preventive maintenance specified in this manual can prevent accidents and reduce repair costs.

WARNING: Safety related maintenance and authorized service must be carried out by qualified personnel, fully trained in servicing procedures by BHM Medical, and equipped with correct tools. Failure to meet these requirements could result in personal injuries and/or unsafe equipment.

User Inspections

	FREQUENCY					
Inspections for lift cassette and track system	**Initially**	**Before every use**	**Every two months or 500 cycles**	**Every four months or 1000 cycles**	**Every year or 2500 cycles**	**Every two years or 5000 cycles**
Inspect for evidence of external damage, missing parts or broken panels.	X	X				
Make sure that end stoppers and rail caps are in place and tightened.	X	X				
Inspect strap for wear, discoloration or loose threads.		X				
Recharge batteries.		X				
Inspect wheels in rail for damage, rust or cracks. Replace if damaged.					X	

Care and Maintenance

Inspections for lift cassette and track system (continued)	FREQUENCY					
	Initially	**Before every use**	**Every two months or 500 cycles**	**Every four months or 1000 cycles**	**Every year or 2500 cycles**	**Every two years or 5000 cycles**
Clean the rail and the clip-on charging station contacts.				X		
Overall inspection by authorized personnel.					X	
Verify emergency stop cord.				X		
Verify emergency lowering device.				X		

Inspections for spreader bar and slings	FREQUENCY					
	Initially	**Before every use**	**Every two months or 500 cycles**	**Every four months or 1000 cycles**	**Every year or 2500 cycles**	**Every two years or 5000 cycles**
Inspect all sling parts (attachments, fabric, stitch areas and strap) for signs of wear, discoloration, deterioration or loose threads.		X				
Clean sling as indicated on the tag.	When necessary					
Inspect the spreader bar on the strap of the lift for damage or cracks. Make sure all attachments are properly secured (e.g. split ring).		X			X	

Inspections by an Authorized Service Technician

Inspection for lift cassette	FREQUENCY					
	Initially	**Before every use**	**Every two months or 500 cycles**	**Every four months or 1000 cycles**	**Every year or 2500 cycles**	**Every two years or 5000 cycles**
Replace strap.						X
Inspect frame parts interlock and hardware for malfunction and make sure there are no parts missing.					X	
Inspect gears for wear and lubricate as necessary.					X	

Care and Maintenance

	FREQUENCY					
Inspection for lift cassette	**Initially**	**Before every use**	**Every two months or 500 cycles**	**Every four months or 1000 cycles**	**Every year or 2500 cycles**	**Every two years or 5000 cycles**
Inspect connecting joints for proper attachment (trolley and spreader bar).					X	
Verify that the emergency brake on the drum is turning freely.					X	
Verify the emergency brake.					X	
Verify emergency lowering mechanism.					X	
Verify alternative up and down buttons on cassette.					X	
Load test with the SWL (safe working load) recommended.					X	

	FREQUENCY					
Inspections for rails	**Initially**	**Before every use**	**Every two months or 500 cycles**	**Every four months or 1000 cycles**	**Every year or 2500 cycles**	**Every two years or 5000 cycles**
Torque end stoppers to 20 N. m. (15 lbf.ft).	X				X	
Make sure that the bracket locking device is not visible.	X				X	
Make sure rail joints are closed and that the spring pins are centered.	X				X	
Make sure the rail is straight when it is not loaded.	X				X	
Make sure the adjusted load setting of the lift is equal or lower than the safe working load of the installation.	X				X	
Check that the accessories (turntable and exchanger) are complete and correctly maintained.	X				X	
Make sure that the attachments (ceiling brackets, wall post, wall brackets) have not been displaced.	X				X	
Inspect track end stoppers. Inspect and tighten hardware (if necessary).					X	
Load test with the SWL (safe working load) recommended.					X	

NOTE: If the product does not work as intended, immediately contact your local BHM Medical representative for support.

Care and Maintenance

Daily Checklist

The following procedures must be followed before each use:

- Charge the batteries. Park the lift on the charger station whenever the lift is not in use.
- Inspect the lift for any damage. If the lift casing does not look properly aligned, or there are any cracks or other damage on the lift, or there are parts missing, do not use it. Contact your local BHM Medical representative to have the lift serviced.
- Inspect the strap for any visible signs of wear, frays, loose threads or other damage. If there is any evidence of damage, do not use it. Contact your local BHM Medical representative to have the lift serviced.
- Inspect the sling for tears, frayed straps or loose stitching. If the sling has any of the above damage, do not use it. Contact your local BHM Medical representative to have the sling replaced.
- Inspect the spreader bar for any signs of cracking or damage.
- Ensure the split ring and clevis pins that attach the spreader bar to the strap are secured.

WARNING: Before each use, make sure all end stoppers are in place and secured.

Inspection and Cleaning

To clean the V4, wipe it down with a damp cloth using warm water and a disinfectant cleaner. Disinfectant wipes, supplied already impregnated with a 70 % v/v solution of isopropyl alcohol, can also be used.

Rub the lift vigorously when using the wipes, to promote an effective disinfection of its entire surface. Do not use phenol, chlorine or any other type of solvent that may damage the finish.

To ensure a better rolling surface for the trolley wheels, clean the inside of the track every 4 months. To do so, insert a damp cloth in the opening and slide it from one end of the track to the other.

WARNING: Always reinstall the rail end stoppers (if removed) after servicing.

Strap Inspection

If the strap is damaged or shows signs of wear or discoloration, the acceptable load on the strap before rupture can drop rapidly and present a danger for the patient or caregiver. BHM Medical recommends a thorough inspection of the straps every 2 months as follows:

1) Completely unwind the strap.
2) Look for any signs of wear or discoloration (see Fig. 26 below).

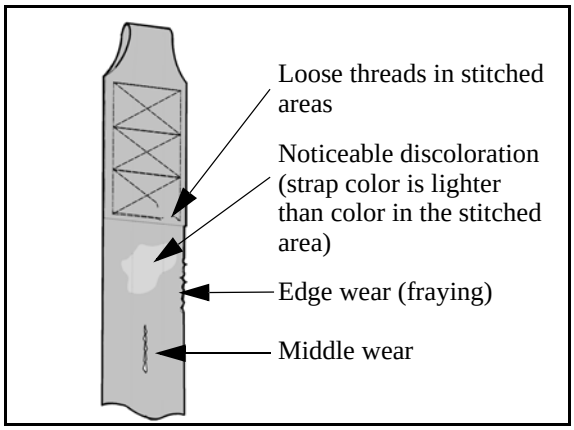


Fig. 26

WARNING: If there is any sign of wear as indicated above or any other visual defects, the strap must be inspected by qualified personnel and changed if required. By continuing to use the lift without changing a damaged strap, the safety of the caregiver or patient is greatly compromised.

NOTE: The manufacturer recommends changing the strap at least every two years (see "Care and Maintenance" section). By continuing to use the lift without changing the strap, the safety of the caregiver or patient is greatly compromised.

Care and Maintenance

Handling and Storage

Avoid violent impacts while transporting the lift.

The lift should not remain stored for long periods of time without recharging the batteries.

NOTE: Even if the lift is not used, BHM Medical recommends charging the batteries at least every two weeks. This will prevent premature aging of batteries.

If you store or ship the V4, ensure that the power is turned off (green light) beforehand.

Battery Replacement

BHM Medical uses sealed lead-acid batteries in the V4 ceiling lifts. BHM Medical batteries do not have any memory effect. Therefore, batteries should not be completely discharged before recharging.

Replace the batteries when there is a noticeable reduction in the number of transfers that can be performed between charges. If you hear the V4 lift beeping and notice a red light flashing, see the instructions in the "Troubleshooting" section of this manual to determine if there is a problem with the batteries.

To replace batteries, be sure to contact your local BHM Medical representative.

CAUTION: Do not attempt to use a battery that was not supplied by BHM Medical. BHM Medical batteries are specially designed for BHM Medical charging systems. Attempting to use an unauthorized battery may seriously damage the lift and/or the charger.

Verification of the Charger's Power Source

If the light does not illuminate when there are batteries correctly installed in the V4, try the following:

1) Make sure that the charger is correctly plugged into the AC outlet, and that the green light on the clip-on charging station is on.
2) Make sure that there is contact between the contact blades of the lift and the contact plates of the charging station.
3) Check the tension of the AC outlet on the wall.
4) If the charge station's green light does not light up, contact your local BHM Medical representative for assistance.

Sling Inspection and Care

For maximum patient safety and hygiene, read the following instructions:

Regular Inspections

It is essential that the slings, their straps, loops and attachment loops are carefully inspected before each and every use. If the slings, loops or straps are frayed, or the clips damaged, the sling should be withdrawn from use immediately and replaced.

Sling Laundering

WARNING: The slings should be checked before and after use and, if necessary, washed according to instructions on the sling. This is especially important when using the same equipment for another patient. This minimizes the risk of cross infection.

Before washing the slings equipped with head support pockets, always remove the plastic reinforcement inserts. Always refit the inserts before reusing the sling.

Mechanical pressure should be avoided during the washing and drying procedure (e.g. rolling or pressing), as these can damage parts vital to the safe and comfortable operation of the sling.

The stretcher cross straps and suspension straps should be checked and washed if necessary. Washing and drying temperatures must not exceed 80°C (176°F). Wash using normal detergents and do not iron.

Care and Maintenance

NOTE: With regard to laundering, slings should not be classified as linen, but as an accessory to a patient transfer lifting and therefore classified as a medical device. Slings should be cleaned and disinfected only in strict accordance with the manufacturer's instructions.

Annual Inspection

The V4 and its accessories must be inspected annually by qualified personnel.

WARNING: The V4 and accessories must be serviced every 12 months as a minimum requirement (see "Care and Maintenance" section). Do not attempt to do the inspection unless you are qualified to do so.

Maintenance Requirements

The V4 is equipped with an electronic monitor that causes a red light to flash when a maintenance inspection is necessary. Arranging for scheduled inspections ensures the durability of the unit and the security of the patient and user.

Once this red light begins to flash, please contact your local BHM Medical representative in order to perform the necessary maintenance inspection.

Troubleshooting

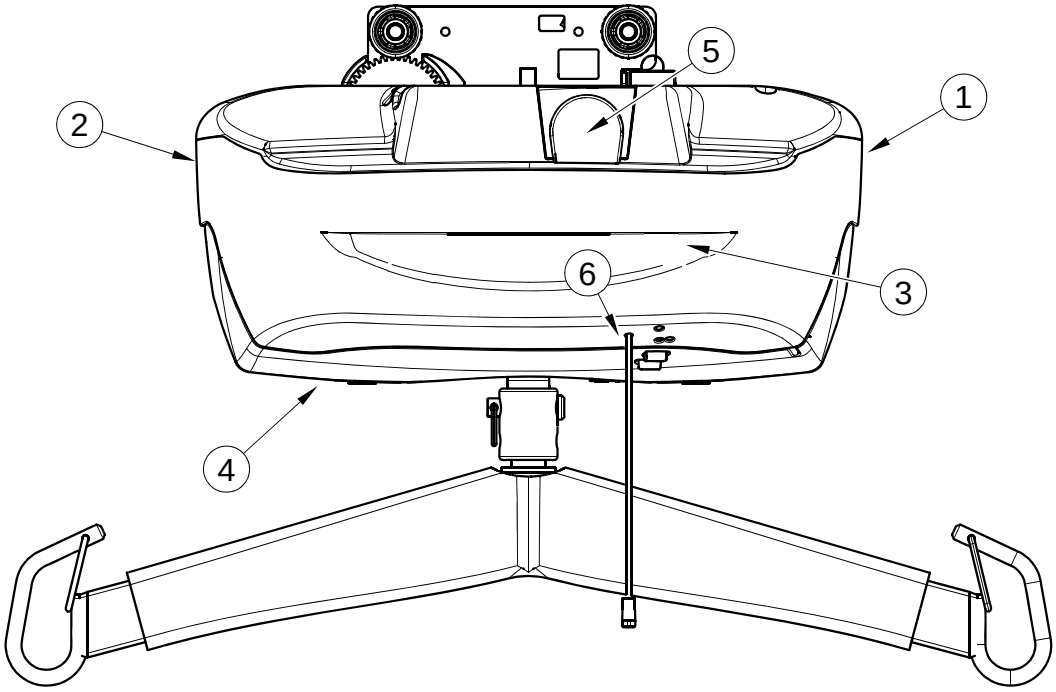
WARNING: Do not attempt to open the V4 ceiling lift cassette. Only a qualified technician is authorized to open it. Alterations made to the V4 ceiling lift cassette by someone other than a qualified technician may cause serious injury.

PROBLEM	TO CHECK
The red “service” light is on and flashing.	• Contact your local BHM Medical representative to do maintenance.
The red light is solid.	• The ceiling lift cassette is under its overheat protection. Wait between 10 to 30 minutes until the red light turns off and press on the “UP” button to use the ceiling lift cassette again.
The unit starts and stops repetitively.	• If the load is over a safe working load, the unit will not work due to the overload protection on the motor.
The ceiling lift cassette emits a beep during utilization. The unit may stop lifting but the lowering function can still be used.	• Batteries are low. Return the ceiling lift cassette to the charging station.
The charger indicator (yellow) on the ceiling lift cassette does not light up when the lift is on the charger.	• Check that the charger is plugged into a standard outlet, and that the outlet has power. The green light on the clip-on charging station indicates that it is functioning.
When returning to charge, the ceiling lift cassette passes the clip on the charging station, or goes in the wrong direction.	• Clean the contact blades of the charging station with mild detergent. Pass the ceiling lift cassette through the charging station manually once, then retry the return to charger function.
Batteries are always dead after only a few transfers (3 to 5).	• Verify the function of the ceiling lift charger and the contact plates on the clip-on charging station. • Replace batteries with new ones. The life of the current batteries could be almost finished. It is important to always change both batteries at the same time. Contact your local BHM Medical representative to have the batteries replaced.
The yellow light on the unit is solid, yet the ceiling lift cassette will only perform one or two transfers.	• Contact your local BHM Medical representative to have batteries replaced.

Troubleshooting

PROBLEM	TO CHECK
The yellow light on the unit is solid, yet the ceiling lift will only work when there is no one on the lift. When you try to transfer someone, the ceiling lift stops.	• Contact your local BHM Medical representative to have the batteries replaced.
The ceiling lift does not work when you press the buttons on the handset.	• If the charging station light is on, move the ceiling lift away from the charging station in order to operate the lift. • If the emergency stop is activated, gently push up on the reset switch plastic insert to turn the unit back on (for units with infrared handsets, pull the red emergency cord again). • Check if the buttons on the ceiling lift cassette are working. If so, the problem may be coming from the handset. If not, check the charge on the ceiling lift. • Slide the ceiling lift over the clip-on charging station. Verify if the yellow light turns on. • If, after testing all of the above, the ceiling lift will not operate, contact your local BHM Medical representative.
The charging light on the ceiling lift cassette continues flashing yellow and the light does not turn solid even after recharging the unit overnight.	• If available, try another integrated clip-on charging station from another ceiling lift, or a spare one; clip it to the rail and charge the unit for 3 hours. If the yellow light is still flashing, contact your local BHM Medical representative. • If, after testing all of the above, the ceiling lift will not operate, contact your local BHM Medical representative.
When you press the button to return the ceiling lift to its charger (4-way motor only), the ceiling lift goes past the charger.	• The charger is either plugged improperly to an electrical outlet or is not working properly. Contact your local BHM Medical representative.

Labels on the Lift



1) Maximum capacity/Service telephone number
2) Date of manufacture, serial number, product code/ Manufacturer identification
3) Product name
4) Travel direction indicators
5) Emergency lowering system access identification
6) Emergency stop identification

Fig. 27

Technical Specifications

PRODUCT INFORMATION	***V4***
Weight, complete (Four-function model)	12.7 kg (28 lb)
Weight, complete (Two-functions model)	11.4 kg (25 lb)
Lifting capacity	200 kg (440 lb)
Strap length	2300 mm (90.6 in)
Lifting speed	6.0 cm/s (2.4 in/s), without load 3.5 cm/s (1.4 in/s) at 200 kg (440 lb)
Maximum stroke (from ceiling)	2300 mm (90.6 in)
Horizontal displacement speeds	10, 15, 20 and 25 cm/s. Speed is 20 cm/s (7.9 in/s) by default
Horizontal axis motor	24 VDC, 62 watts
Vertical axis motor	24 VDC, 110 watts

ELECTRICAL

Duty cycle	Max 10%, 1 minute continuously
Rating	24 VDC, 15 A max.
Noise level for either raisng or lowering, with or without load	61 dBA max.
Medical equipment	Type BF protection against electrical shock in accordance with IEC 60601-1

The V4 is compliant with CAN/CSA-C22.2, CSA-Z323.5.98, IEC 60601-1, UL 60601-1 ANS ISO 10535.

WARNING: Radio transmitting devices such as mobile telephones, two-way radios, etc., should never be used near the V4, since they can interfere with the function of the lift. Cables from potentially strong sources of electromagnetic fields should not be placed near the unit. See "Electromagnetic Compatibility" section of this manual for full details.

Battery type	Sealed rechargeable valve regulated lead acid battery
	Constant voltage charge
	Cycle used 14.1 - 14.4 V
	Standby use: 13.5 - 13.8 V
	Initial current: Less than 2.00 A
	Rating: 12 V, 5 Ah
Battery capacity	Provides up to 120 transfers with a load of 100 kg (220 lb), up to 70 transfers with a load of 200 kg (440 lb).
Degree of protection - handset	IPX7
Degree of protection - V4	IP21
Lift - protection class - shock prevention	Internally powered equipment
Battery Charger input	100-240 VAC, 50-60 Hz
Battery Charger output	28.1 VDC, 1 A max
Battery Charger safety protection	Class 2, double insulated

Technical Specifications

OPERATION AND STORAGE CONDITIONS

Ambient temperature range	-10 °C to 50 °C (14 °F to 122 °F)
Relative humidity range	10 % to 80 % incl. condensation
Atmospheric pressure range	Operation: 700 hPa to 1060 hPa Storage: 500 hPa to 1060 hPa

WARNING: This equipment is not suitable in the presence of flammable anesthetic mixtures with air or oxygen, or with nitrous oxide.

RECYCLING

Battery	Sealed lead-acid, rechargeable, recyclable
Package	Cardboard recyclable
The lift	Separated and recycled, according to the European Directive 2002/96/EG (WEEE).

Technical Specifications

Lift Dimensions

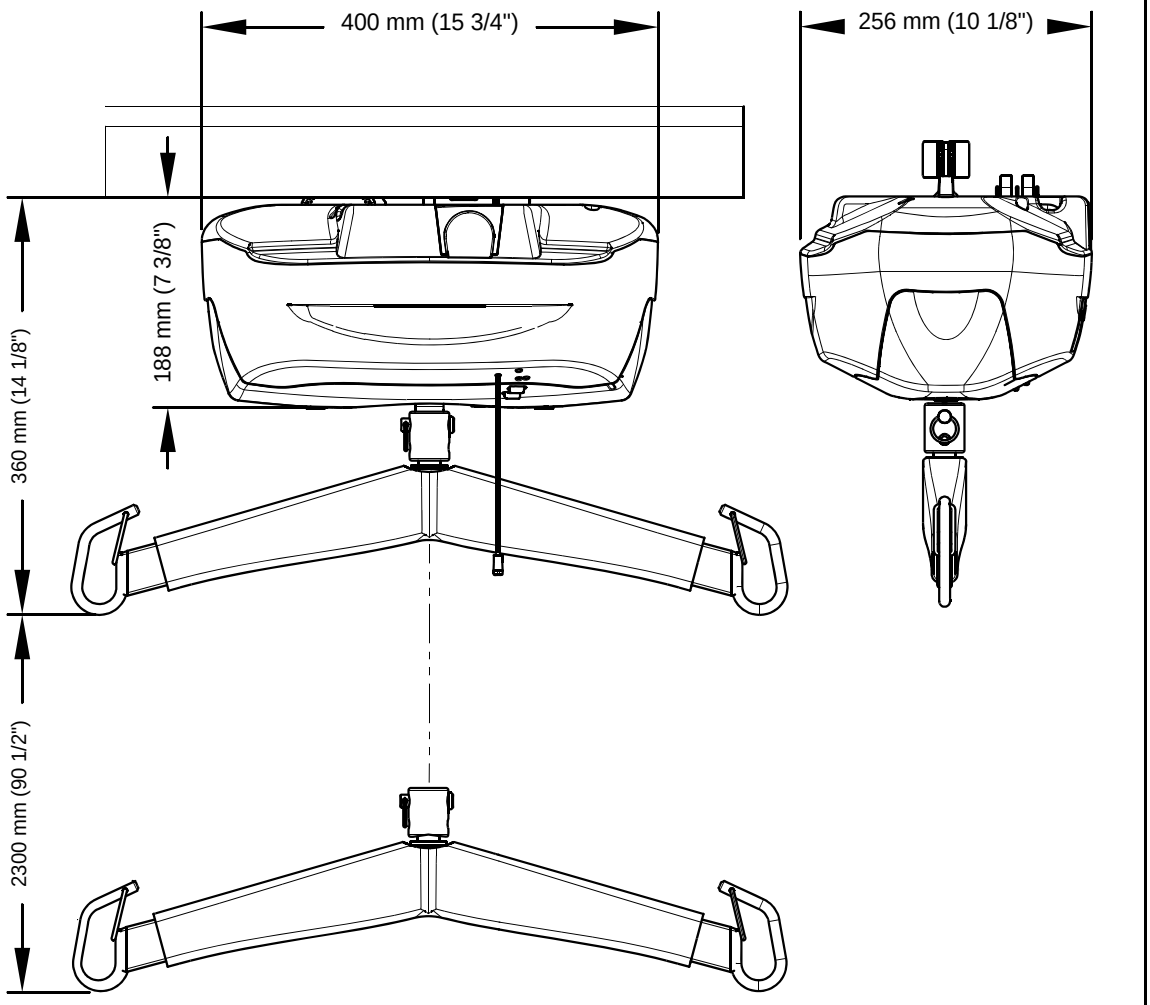


Fig. 28

Electromagnetic Compatibility

Electromagnetic Compliance

The V4 has been tested for compliance with current regulatory standards regarding its capacity to block EMI (electromagnetic interference) from external sources.

Nonetheless, some procedures can help reduce electromagnetic interferences:

- Use only BHM Medical cables and spare parts to avoid increased emissions or decreased immunity which can compromise the correct functioning of the equipment.
- Ensure that other devices in patient-monitoring and/or life-support areas comply to accepted emissions standards.
- Maximize the distance between electro-medical devices. High-powered devices may produce EMI that can affect the ceiling lift. Refer to separation distance table further on in this document.

For more information on how to manage the unit's RF electromagnetic environment, please consult the *AAMI TIR 18-1997 - Guidance on Electromagnetic Compatibility of Medical Devices for Clinical/Biomedical Engineers*.

Electromagnetic Emissions

Guidance and Manufacturer's Declaration - Electromagnetic Emissions - For all Equipment and Systems		
The V4 is intended for use in the electromagnetic environment indicated below. The customer or the user of the V4 should assure that it is used in such an environment.		
Emissions test	**Compliance**	**Electromagnetic environment - guidance**
RF emissions CISPR 11	Group 1	The V4 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The V4 is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions	Not applicable	
Voltage fluctuations/flicker emissions IEC 61000-3-3	Not applicable	

Electromagnetic Compatibility

Electromagnetic Immunity

Guidance and Manufacturer's Declaration - Electromagnetic Immunity - For all Equipment and Systems			
The V4 is intended for use in electromagnetic environment specified below. The customer or the user of the V4 should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment - guidance**
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-5	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines Not applicable for input/ output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV differential mode ±2 kV for input/output	Not applicable	
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% *U*T (>95% dip in *U*T) for 0.5 cycle 40% *U*T (60% dip in *U*T) for 5 cycles 70% *U*T (30% dip in *U*T) for 25 cycles <5% *U*T (>95% dip in *U*T) for 5 sec.	Not applicable	
Power frequency (50/60 Hz) magnetic field	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercials or hospital environment.
NOTE: *U*T is the AC mains voltage prior to application of the test level.			

Electromagnetic Compatibility

(continued)

<table>
<tr><th colspan="4">Guidance and Manufacturer's Declaration - Electromagnetic Immunity - For Equipment and Systems that are Not Life-Supporting</th></tr>
<tr><th>Immunity test</th><th>IEC 60601 test level</th><th>Compliance level</th><th>Electromagnetic environment - guidance</th></tr>
<tr><td>Conducted RF
IEC 61000-4-6</td><td>3 Vrms
150 kHz to 80 Mhz</td><td>3 Vrms
150 kHz to 80 Mhz</td><td>Portable and mobile RF communications equipment should be used no closer to any part of the V4, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.
Recommended separation distance:
$d = \left[\frac{3.5}{V1}\right]\sqrt{P}$
$d = \left[\frac{3.5}{E1}\right]\sqrt{P}$ 80 MHz to 800 MHz
$d = \left[\frac{7}{E1}\right]\sqrt{P}$ 800 MHz to 2.5 GHz
where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters.
Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, (a) should be less than the compliance level in each frequency range. (b)
Interference may occur in the vicinity of equipment marked with the following symbol:
  </td></tr>
<tr><td>Radiated RF
IEC 61000-4-3</td><td>3 V/m
80 MHz to 2.5 GHz</td><td>3 V/m
80 MHz to 2.5 GHz</td><td></td></tr>
<tr><td colspan="4">NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies.
NOTE 2: Theses guidelines may not apply in all situations. Electromagnetic propagation if affected by absorption and reflection from structures, objects and people.</td></tr>
<tr><td colspan="4">(a) Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the V4 is used exceeds the applicable RF compliance level above, the V4 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the V4.</td></tr>
<tr><td colspan="4">(b) Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.</td></tr>
</table>

Electromagnetic Compatibility

(continued)

Recommended Separation Distance Between Portable and Mobile RF Communications Equipment and the *V4* for Equipment and Systems that are not Life-Supporting			
Recommended separation distances between portable and mobile RF communications equipment and the V4.			
The V4 is intended for use in electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the V4 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communication equipment (transmitters) and the V4 as recommended below, according to the maximum output power of the communications equipment.			
Rated maximum output power of transmitter W	**Separation distances according to frequency of transmitter m**		
	150 kHz to 80 MHz	80 MHz to 800 MHz	800 MHz to 2.5 GHz
	$d = \left[\frac{3.5}{V1}\right]\sqrt{P}$	$d = \left[\frac{3.5}{E1}\right]\sqrt{P}$	$d = \left[\frac{7}{E1}\right]\sqrt{P}$
0.01	0.12	0.12	0.24
0.1	0.38	0.38	0.74
1	1.2	1.2	2.4
10	3.8	3.8	7.4
100	12	12	24
For transmitters rated at a maximum output power not listed above, the recommended separation distance *d* in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.			
NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.			
NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			

Logbook

Product Name:	Serial Number:
Date of Purchase:	Warranty Period:
Distributed by:	

TO BE COMPLETED AFTER EACH SERVICE OR INSPECTION

Service type: ☐Pre-delivery ☐Periodic inspection ☐Minor ☐Major	
Condition report:	
Action taken:	
Date: dd/mmm/yyyy	Inspected by: Block letters Signature

Service type: ☐Pre-delivery ☐Periodic inspection ☐Minor ☐Major	
Condition report:	
Action taken:	
Date: dd/mmm/yyyy	Inspected by: Block letters Signature

Service type: ☐Pre-delivery ☐Periodic inspection ☐Minor ☐Major	
Condition report:	
Action taken:	
Date: dd/mmm/yyyy	Inspected by: Block letters Signature

Logbook

Service type: ☐Pre-delivery ☐Periodic inspection ☐Minor ☐Major	
Condition report:	
Action taken:	
Date: dd/mmm/yyyy	Inspected by: Block letters Signature

Service type: ☐Pre-delivery ☐Periodic inspection ☐Minor ☐Major	
Condition report:	
Action taken:	
Date: dd/mmm/yyyy	Inspected by: Block letters Signature

Service type: ☐Pre-delivery ☐Periodic inspection ☐Minor ☐Major	
Condition report:	
Action taken:	
Date: dd/mmm/yyyy	Inspected by: Block letters Signature

Limited Warranty

This warranty is extended only to the original purchaser/user of BHM Medical products.

Subject to the limitations and exclusions hereafter, BHM Medical Inc. warrants its products to be free from defects in material under normal use and service, within the periods stated below from the date of purchase. If within such warranty period any such product shall be proven to be defective, such product shall be repaired or replaced at BHM Medical option. This warranty does not include any labour or shipping charges incurred in replacement part installation or repair of any such product. BHM Medical sole obligation and your exclusive remedy under this warranty shall be limited to such repair and/or replacement.

The proper operation of this product is dependant on the compliance with the instructions regarding operation and maintenance. Failure to comply strictly with those instructions will void this warranty.

Patient Lifter	1 year
Lifter's Accessories	1 year
Weighing Devices	1 year
Slings	1 year
Tracks and Installation	1 year
Easytrack / Easytrack FS Systems	1 year
Batteries - All Lifts (except portable track lift)	1 year
Batteries – Portable Track Lift	3 months

For warranty service, please contact the distributor from whom you purchased the BHM Medical product.

Do not return products to our factory without prior authorization. BHM Medical will issue a Return Authorization (RA) Number. C.O.D. shipments will be refused; all shipments to BHM Medical must be prepaid. For this warranty to be valid, the purchaser must present its original proof of purchase at the moment of the claim. The defective unit, assembly or part must be returned to BHM Medical for inspection. The part or components repaired or replaced are guaranteed for the remaining period of the initial warranty.

Limitations and Exclusions:

The warranty above does not apply to serial numbered products if the serial number has been erased, removed or defaced.

No warranty claim shall apply where the product or any other part thereof has been altered, varied, modified, or damaged; either accidentally or through improper or negligent use and storage. Warranty does not apply to products modified without BHM Medical's express written consent (including but not limited to products modified with unauthorized parts or attachments), products damaged by reason of repairs made to any component without the specific consent of BHM Medical, or to products damaged by circumstances beyond BHM Medical's control. BHM Medical will solely determine evaluation of warranty claim. The warranty does not apply to problems arising from normal wear or failure to adhere to the instructions in this manual. This limited warranty does not cover non defect damage, damage caused by improper installation (other than installation performed by BHM Medical) operation or care (including but not limited to abuse, misuse, failure to provide reasonable or necessary maintenance, unauthorized repairs or any alterations to the products). BHM Medical Inc. slings are void of warranty if not laundered as per instructions on the Sling Label.

BHM Medical Inc. shall not be liable for damages losses or inconveniences caused by a carrier.

Only the original installation performed by BHM Medical or by its authorized subcontractors is covered by this limited warranty. Any modification to the original installation not authorized by BHM Medical will void this limited warranty. The limited warranty does not cover any problems with, or relating to the premises where the products are installed or to the property of the purchaser and shall remain the responsibility of the purchaser.

Limited Warranty

This limited warranty is in lieu of any other warranties, express or implied, and of any other obligations or liability on BHM Medical's part. Under no circumstances shall BHM Medical be liable for consequential, incidental or special damages arising in connection with use, or inability to use, the products. In no event shall BHM Medical's liability for breach of warranty, or for any delay in the performance of this warranty due to cause beyond the control of BHM Medical, breach of contract, negligence or strict liability exceed the cost of the product covered hereby. BHM Medical neither assumes nor authorizes any person to assume for it any other obligation or liability in connection to the sale installation, maintenance or service to the products.

The purchaser may have other rights under existing provincial or federal laws and where any terms of this warranty are prohibited by such laws, they are deemed, null and void, but the remainder of the warranty shall remain in effect.

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April 2011

BHM MEDICAL

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